DOCUMENT RESUME

ED 053 091 24 SP 005 135

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TITLE Guidelines for the Development of Minicourses.
INSTITUTION Far West Lab. for Educational Research and Development, Berkeley, Calif.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO BR-6-2931
CONTRACT OEC-4-7-062931-3064
NOTE 24p.

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS Educational Development, *Guidelines, *Instructional Materials, *Material Development, Microteaching, Short Courses, *Teacher Education, Teaching Skills
IDENTIFIERS *Minicourses

ABSTRACT

This paper pulls together the knowledge and insights that have been accumulated in the development of Minicourses. It is expected that the guidelines will be revised and enlarged as new knowledge about this work is accumulated. The guidelines cover the following aspects of Minicourse development: initial planning, the introduction film, the instructional film, the model film, the practice lesson, the teacher handbook, evaluation forms, and the coordinator's handbook. A separate section devoted to each of these elements describes in detail the purpose of that particular element and then lists comprehensive guidelines. (Appendixes contain sample materials: a checklist of teacher activities for Minicourse Eight, a daily course schedule for Minicourse Nine, a list of techniques and principles related to learning from films, and a list of film credits for a minicourse introduction film.) (RT)

ED053091

ER 6-2931 5/70
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SP

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GUIDELINES FOR THE DEVELOPMENT OF MINICOURSES

by
Walter R. Borg*

INTRODUCTION

The purpose of this paper is to pull together the knowledge and insights that have been accumulated in the development of Minicourses. We frequently find that useful ideas and approaches developed and tested by one team are unknown to members of some other teams. Also, since experienced development team members leave the Laboratory from time to time, it is hoped that this and subsequent revision of the Minicourse Guidelines will be useful in preserving the knowledge gained by these staff members. Finally, the Minicourse Guidelines should be a valuable source of information for new staff members who are learning the process employed in the development of Minicourses. Since there is still much to be learned about development of educational products such as Minicourses, I am sure that this paper will be revised and enlarged from time to time as we accumulate new knowledge about this work. I would like each staff member in the Teacher Education Program to keep a copy of this paper handy as a reference and also make notes and additions to the paper so that they can make inputs to the next revision. Staff members should also remember the Minicourse Guidelines will be used in evaluating their progress on Minicourses at various stages of development. However, this does not mean that the Guidelines must be followed slavishly. It does mean that when a development team

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* Development team leaders in the Teacher Education Program (Philip Langer, Meredith Gall, Walter Stenning, Jan Taylor and Betty Ward) all made important contributions to this paper.

departs from these Guidelines, there should be a clear-cut reason for such departure and development team members should be prepared to defend the course of action they have taken. It is always defensible to depart from the Guidelines when in the process of doing so the development team collects research evidence on the effectiveness of the new approach. Such evidence, of course, would form the basis for changing the Guidelines when better techniques are discovered.

For persons outside of the Teacher Education Program, I believe that this paper may provide some help in other research and development efforts since many of the guidelines that we have established are relevant to any educational product.

A. INITIAL PLANNING

Purpose

The purpose of the planning task is to translate the broad goal of the course (such as "to improve the teacher's tutoring skills in mathematics") into a specific course plan that is built upon the experience and research evidence found in the professional literature.

Guidelines

1. As part of initial planning, a review of the literature related to the skills area of the proposed course should be carried out. After completing the review, a written report should be prepared. This report can be in the narrative form typically found in dissertations or can consist of a brief summary of the main outcomes of the review, accompanied by annotated references covering all of the pertinent sources.

2. One of the outcomes of initial planning should be a tentative list of the specific skills that the course will attempt to teach. These skills should be defined in operational terms and as specifically as possible.
3. The initial planning should also produce a tentative list of behavioral change objectives. When permitted by the state-of-the-art, these should state specific terminal behavior levels that you expect teachers to achieve at the end of the course. However, for many teaching skills there is no evidence available to establish a specific level of terminal behavior that is optimum. For example, although most educators agree that teachers' asking of higher order questions is more desirable than asking fact questions, and there is some research evidence that higher order questions lead to achievement gains, there is no evidence on how many higher order questions a teacher should ask within a given period of time. There is also doubt whether any such optimum level exists since changes in the teaching situation probably change the requirement for higher order questions. In the case of higher order questions, probably two objectives are pertinent. One is to significantly increase the <u>proportion</u> of higher order questions as compared with fact questions, and the other is to significantly increase the <u>quality</u> of higher order questions. It is doubtful whether a significant increase in the <u>number</u> of higher order questions in itself constitutes a worthwhile objective since many of the best discussion lessons we have observed have been ones in which the teacher asked only three or four very good higher order questions and these questions were sufficient to maintain an effective discussion lesson. Briefly,

behavioral objectives can be stated in several ways:

a. A statement of specific terminal levels of behavior to be achieved.

b. A statement that a statistical significant increase or decrease in the stated behavior will occur.

c. The proportion of one behavior to a related behavior (i.e., higher order questions versus fact questions) will change significantly.

It is also desirable to state the percentage of teachers for which the objective is to be obtained. For example, an objective of the first type mentioned above could be stated as follows: Given a 20-minute class discussion lesson, 75% of teachers completing the course will use redirection 30 or more times. Finally, objectives should be stated for pupil performance as well as teacher performance whenever possible. The ultimate goal of any teacher education course is to change pupil performance and it is important to state as many testable objectives for pupil performance as is possible.

In addition to stating course objectives, it is necessary to state the minimum level of teacher performance that can be accepted as indicative of course success. In many cases, Minicourses do not achieve all of their objectives, but achieve a sufficient number of these objectives so that the course makes substantial changes in teacher and pupil performance and, therefore, its use is justified. Thus, after completing a statement of objectives the development team should weigh each objective carefully and decide the minimal level of achievement that would be acceptable for that objective. They should also weigh carefully the

relative importance of the various objectives and decide how many objectives and which objectives must be achieved in order for the course to be regarded as successful.

4. The initial planning should also include a tentative daily course sequence. It does not appear necessary to choose any <u>one</u> form or model for setting up a course schedule. It is necessary that such a schedule be included and seems to be most helpful to the teacher when set up in checklist form. Included with these Guidelines are two examples of schedules from Minicourses 8 and 9. (See Appendix A)

   a. <u>Explanatory Paragraph</u>. Including an explanatory paragraph stating that "this is a checklist, schedule of activities, etc." may be superfluous. A good introductory statement, as used by Minicourse 8, tells the number of days of course activity, and suggests that the description of the activities be used as a personal checklist.

   b. <u>Headings</u>. A clear format is one in which the weeks are listed and numbered, with the days and their activities listed underneath. It is a good idea to identify the activities for a series of days with the name of the lesson or sequence.

   Example:

   WEEK ONE

   <u>Introductory Meeting</u>

   Day One
   1. Activity
   2. Activity

Instructional Sequence One, "Working Alone"

Day Two 1. Activity
2. Activity

Day Three 1. Activity
2. Activity
3. Activity

c. Checklist. To set up a checklist, a line may be inserted before the number of the activity, or a box may be supplied at the right margin.

Examples:

Day One _____ 1.

_____ 2.

Day One 1. ☐

2. ☐

d. "Week Preceding Course". Several course outlines have included an initial category: "Week Preceding Course." This lists the orientation activities that the teacher should be sure to have completed. Depending on the set-up of the course, this feature seems to be a useful idea.

e. Describing the Activities. Each activity should be described with as much detail as is appropriate. Tell which Instructional Sequence is to be viewed; give its title. Tell the names of the section of the Handbook that is to be read; give the pages.

In some course schedules, such activities as the Microteach are broken down into the various steps to be checked off. This may be effective in the first mention of a microteach, but may become cumbersome when used every time.

B. THE INTRODUCTION FILM*

Purpose

The introduction film has three major purposes. These are to provide:

1. A description of what the teacher will learn and why. This description should include a simplified statement of the objectives of the course and a brief rationale explaining why the skill area to be covered is important.
2. A clear sequential statement of what the teacher will do during the course. This statement would also, in effect, contain a description of the Minicourse model and would provide a brief rationale for each of the steps in the model.
3. Motivational material about the Minicourse approach. This could include information from previous Minicourses, field test evidence about the course in question, etc., that would be designed to motivate the teacher to take the course being introduced.

Guidelines

1. Keep the introduction short and clear, using simple language.
2. In the introduction and in all other films, use as many proven instructional techniques as possible (see Appendix B).
3. Main points and information that the teacher needs in order to proceed should be reviewed at least once and summarized at end of film.
4. The introduction film for Minicourse 1 (commercial version) provides a good model for purpose #2.

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* "Film" will be used to refer to both motion picture film and videotape.

5. The introduction film should contain credits which mention the development team leader, team members, production team members who make a significant contribution, the program director and the Laboratory director (see Appendix C for a sample).

C. INSTRUCTIONAL FILM

Purpose

The purpose of the instructional film is:

1. To provide the learner with a clear operational definition of the skills covered.
2. To provide classroom examples of these skills and specify the conditions under which the skills can be used.
3. To provide the learner with an opportunity to practice and/or discriminate the skills when possible.

Guidelines

1. Not more than three skills should be covered in a single instructional film. A single complex skill which is subsequently broken into several sub-skills is not regarded as a single skill. For example, if higher order questioning is broken up into the various types of higher order questions in the instructional lesson, and if teachers are expected to discriminate and practice these various types, then each type of higher order question would be regarded as a separate skill. Furthermore, if a single type of higher order questioning, such as comprehension, is broken into various sub-categories, each sub-category should be regarded as a single

skill. For more complex skills, such as framing higher order questions, each instructional lesson should cover only one such skill.

2. A precise operational definition of each skill should be presented. The definition should be sufficiently clear so that the viewer can reliably discriminate the defined skill from similar skills.
3. Examples of each skill should be given in the instructional film. These may be taken from either regular classrooms or microteaching situations. They should be brief and should contain as little as is necessary other than the skill itself.
4. Questions should be asked at the end of the instructional film. The most effective questions are those that require the learner to apply the knowledge covered in the film rather than those that ask merely for recall or recognition. Using a skill such as refocusing as an example, a question which asks the teacher to frame a refocusing question is better than one that asks the teacher to define refocusing.
5. Include initial questions in the instructional film when appropriate. Research has indicated that confirmation questions, i.e., those given at the end of the film are more effective than prompting questions, i.e., those given at the beginning of the film. However, both types contribute to learning and should be used when appropriate.
6. Each instructional film should start with a very brief review of the material covered in the previous lesson. In courses where the teacher applies a related sequence of skills (i.e., each lesson builds on previous ones), each instructional lesson should briefly

review the main points in all previous instructional lessons.

7. The instructional film should include provisions for active learner participation. Such participation can be scheduled while the film is running or can be included by asking the participant to stop the film, respond as requested, and then restart the film. Narrator comments in instructional films should be brief and should use simple language. Research indicates that increasing the difficulty level of narration reduces the amount learned. Theoretical and research back-up material generally should be included in the Teacher Handbook rather than the instructional film.
8. Questions should be responded to in writing when this does not cause excessive delay. There is some research evidence to indicate that framing an answer covertly is about as effective for learning as giving the answer aloud or writing it. However, writing the answer provides evidence that an answer has actually been given.
9. Certain techniques such as the use of charts, sub-titles, etc., have been found to improve learning. Such techniques should be used whenever appropriate. A summary of such techniques may be found in Appendix B.

D. THE MODEL FILM

Purpose

The model film has two purposes. These are:

1. To provide the learner with a model of the skills being taught within the context of a regular classroom lesson or a microteaching lesson. Research has demonstrated that viewing models is a powerful

aid in learning new skills.

2. To provide training to the learner in discriminating the skills covered in the model lesson.

Guidelines

1. At the start of the model film the skills to be illustrated should be very briefly defined by the narrator.
2. The model lesson should be planned so as to provide clear examples of the skills to be observed with a minimum of other material included. A certain amount of activity other than practicing the specific skills is usually necessary in order to provide a reasonably realistic lesson and one with some continuity. However, the minimum amount of such activity needed to achieve these purposes should be included in order to keep the model lesson reasonably short.
3. The model lesson should be planned very carefully with the teacher who is to act as a model. This usually requires a team member to work several hours with the teacher in developing a specific and detailed lesson plan. This plan will usually include a set of specific cues for the model teacher.
4. In planning model lessons the team member should avoid whenever possible situations where the teacher must memorize specific lines. However, in lessons where it is necessary for the teacher to memorize the complete sequence, it is advisable to look for teachers with considerable acting skills or else hire actors to play the role of the model teacher.

5. The children in the model lesson should generally not have lines and should be responding naturally to the lesson. However, children usually respond well to direction, so if more than one take must be made of the model lesson, the director may suggest changes in some pupils' responses.
6. The discrimination training should be incorporated in the model lesson in a way that does not destroy the continuity of the lesson itself.
7. Several specific model lesson procedures have been tried in different Minicourses. Until empirical evidence has been obtained on the relative effectiveness of different model lesson approaches, no specific format will be required. However, formats that result in substantial breaks in the continuity of the lesson should be avoided.
8. In selecting teachers and pupils for model lessons (and for clips that appear in instructional lessons), persons from a variety of racial backgrounds should be sought. At least one model teacher in the course should be black. Each pupil group should include some black, Mexican-American or Oriental students.
9. Children in model lessons should also represent a range of ability. Unless you ask them to do otherwise, most teachers bring their best students to the Laboratory for model lessons. This leads to an unrealistic lesson. The teacher taking the course must be convinced that most Minicourse skills will work with all pupils, not just the best pupils.

10. The model lesson should provide at least three examples of each skill that was covered in the preceding instructional film.

E. THE PRACTICE LESSON

Purpose

The purpose of the practice lesson is to familiarize the teacher with the instructional processes used in the Minicourse. Since few teachers have ever been exposed to training similar to the Minicourse, it has been found that a period of adjustment is required before the teacher can profit from this type of training. The practice lesson provides this period of adjustment.

Guidelines

1. All Minicourses will contain a practice lesson.
2. The practice lesson should include a practice instructional film and a practice model film. These should follow the same format and guidelines as regular model and instructional films except as noted below.
3. Practice instructional and model lessons should be shorter than regular lessons.
4. The practice lesson should usually cover two skills so that the trainee can obtain practice in discrimination training. These skills should preferably be very simple skills and should not be essential to the course since the level of learning on the practice lesson skills will generally not be very high. If skills essential to the course are covered in the practice lesson, they should be covered again in a later lesson in order to assure that they are learned.

5. A microteach session should be included in the practice lesson. The use of a reteach lesson is optional.

F. THE TEACHER HANDBOOK

Purpose

The teacher handbook should be designed to achieve several purposes. These include:

1. Provide pertinent research information that relates to the skills covered in the course.
2. Provide the teacher with a thorough rationale regarding the use of the skills in teaching.
3. Provide the teacher with guidelines and suggestions regarding ways in which the skills can be used in a variety of teaching situations. This should include written examples or sample lessons when possible. Any materials that will make it easier for the teacher to incorporate the skills into his/her regular teaching are desirable.
4. Provide the teacher, when possible, with additional practice in using and discriminating the skills when the nature of the skills permits such practice to be provided in a written format.
5. Provide the teacher with clear and definite guidance on what he or she is to do at each step during the course sequence.

Guidelines

1. The handbook should provide a detailed day-to-day sequence that the teacher can follow while taking the course.

2. The handbook should be organized in a way that provides a parallel handbook section for each instructional and model lesson.
3. The handbook should contain written practice lessons and discrmination exercises related to the skills when these can be presented in a written format.
4. The handbook should use simple, straight-forward language and should avoid technical and professional jargon whenever possible.
5. Each chapter in the handbook should start with a clear statement of the purpose of the chapter in terms of what the teacher should learn as a result of completing the chapter.
6. A set of review questions should be provided at the end of each handbook chapter.
7. A supplement should be provided for principals, defining a desirable principal role and including specific suggestions for participation.

G. EVALUATION FORMS

The evaluation forms will typically be included in the Teacher Handbook. However, since they provide the main source of specific feedback to the teacher, they will be considered separately.

Purpose

1. The purpose of the model lesson evaluation forms (ML) is to provide discrimination training to the learner.
2. The purpose of the microteach and reteach evaluation forms (MR) is to provide the learner with specific feedback on his performance

of the skills being learned that can be used as a basis for improving his performance.

Guidelines

1. Each evaluation form should be developed specifically for the given lesson. Thus, general evaluation forms should not be used.
2. Instructions for the evaluation forms should be as brief and simple as possible.
3. Each evaluation form should be carefully tested to make sure that it does not make excessive demands upon the teacher. A common mistake made in developing evaluation forms is to ask the teacher to do too much during the evaluation. Whenever appropriate, the MR evaluation forms should provide a means for the teacher to evaluate both the quantity (i.e., frequency of use of specific skills) and the quality of his or her performance.
4. Whenever possible on the MR forms, the teacher should be given standards to work towards. Quantitative standards should suggest a frequency range that the teacher should strive for in the case of a particular skill or behavior. Quality standards should include criteria for judging the quality of the teacher's use of the skill and provide samples against which the teacher could compare his performance.
5. The MR evaluation forms should give the teacher as much help as possible in interpreting the results that he obtains on the form. This can consist of written interpretative material such as was provided in Minicourse 1, but should probably go further than this.

One possibility is to give examples of different levels of teacher performance and provide an interpretation for each level. Parsons' use of interpretative materials in the GSA program might provide a useful example for improving our interpretative materials on the Minicourses.

6. The teacher should evaluate each skill covered in the course at least once on either a microteach or reteach evaluation form.

H. THE COORDINATOR'S HANDBOOK

Purpose

The purpose of this handbook is to provide everything needed by a local teacher or administrator to set up and coordinate the Minicourse. It should be assumed that the coordinator has no previous knowledge about Minicourses.

Guidelines

The coordinator's handbook should include the following items:

1. A statement of the rationale underlying the Minicourse model.
2. Objectives and specific behaviors covered in the course.
3. Detailed instructions for conducting pre-course meeting, including suggested agenda and any informs that will be needed.
4. The Minicourse 1 Coordinator's Handbook (commercial version) provides a good model to follow.

I. FIELD TEST GUIDELINES

Detailed guidelines for the three field tests in the Minicourse

development cycle are provided in the field test manual, which should be studied carefully by personnel planning or participating in field tests.

APPENDIX A

MINICOURSE EIGHT

CHECKLIST OF TEACHER ACTIVITIES

Minicourse Eight involves 22 days of activity. The daily tasks to be completed are described in the following course sequence. Use the checklist as you complete each daily activity.

Day

1 INTRODUCTORY MEETING

- a. View Introductory Tape ☐
- b. Practice operating equipment ☐
- c. Assignment: Read Introduction and Chapter I in Teacher Handbook, Pages 1 through 29 ☐

2 INSTRUCTIONAL SEQUENCE I, "WORKING ALONE", MODEL I

- a. View Instructional Sequence I Use Checklist, Page 13 ☐
- b. View Model Lesson Use Checklist, Page 14 ☐
- c. Replay Model Lesson I, if desired ☐
- d. Plan a 10-minute Microteach Lesson ☐

  Read Pages 15 through 19

3 LESSON PREPARATION

- a. Complete planning forms, Pages 20-21 ☐

4 MICROTEACH I

a. Videotape Microteach I ☐

b. Evaluate Microteach I with:

-Self Evaluation, First Viewing, Page 22 ☐

-Self Evaluation, Second Viewing, Page 23 ☐

c. Plan Reteach Lesson, Pages 24-26 ☐

5 RETEACH I (TOTAL CLASS) ☐

a. Complete Evaluation Checklist, Pages 27-28 ☐

6 SECOND RETEACH (IF NECESSARY) Page 29 ☐

a. Assignment: Read Teacher Handbook Chapter II, Pages 30-42 ☐

7 INSTRUCTIONAL SEQUENCE II, "PROBLEM SOLVING," MODEL II

a. View Instructional Tape II Use Checklist, Page 43 ☐

b. View Model Lesson II Use Checklist, Page 44 ☐

c. Replay Model Lesson II, if desired ☐

d. Plan a 10-minute Microteach Lesson. Read Pages 45-49 ☐

8 LESSON PREPARATION

a. Complete planning forms, Pages 50-52 ☐

INTRODUCTION
DAILY COURSE SCHEDULE

Thought Questions in the Intermediate Grades

The daily course schedule lists the activities that you will complete in Minicourse Nine. It is in the form of a day-by-day checklist. You can use the blank spaces to write the date on which each activity will occur. You can also use these spaces to check off each activity as you complete it.

WEEK PRECEDING COURSE

_____ Pre-course audiotaping of class discussion

_____ Training in use of videotape recorder (VTR)

_____ Read handbook: Introduction to the Minicourse
Research Findings
Course Description

_____ Complete Handbook Lesson

_____ Begin Lesson One exercises in handbook

LESSON ONE: Practice in Microteaching

Day 1 _____ Complete Lesson One exercises in handbook

_____ Complete instructional and model Lesson One

Day 2 _____ Practice microteach

_____ Select students

_____ Set up VTR for recording

_____ Review model lesson for Lesson One (optional)

_____ Microteach for about 15 minutes

_____ Complete microteach self-evaluation form

Day 3 _____ Practice reteach

_____ Select students

_____ Set up VTR for recording

_____ Review model lesson for Lesson One (optional)

_____ Microteach for about 15 minutes

_____ Complete reteach self-evaluation form

_____ View your reteach tape with fellow teacher (optional)

LESSON TWO: Analysis

Day 4 _____ Complete Lesson Two exercises in handbook

_____ Complete instructional and model Lesson Two

Day 5 _____ Microteach

Day 6 _____ Reteach

LESSON THREE: Synthesis and Probing

Day 7 _____ Complete Lesson Three exercises in handbook

_____ Complete instructional and model Lesson Three

Day 8 _____ Microteach

Day 9 _____ Reteach

LESSON FOUR: Evaluation

Day 10_____ Complete Lesson Four exercises in handbook

_____ Complete instructional and model Lesson Four

Day 11_____ Microteach

Day 12_____ Reteach

EVALUATION OF COURSE

Day 13_____ Post-course audiotaping of class discussion

_____ Post-course questionnaire and meeting with Laboratory representatives

_____ Stanford Battery (perception test)

APPENDIX B

TECHNIQUES AND PRINCIPLES RELATED

TO LEARNING FROM FILMS

1. State the purpose of the lesson.
2. Use sub-titles, charts and other written cues to support the narration.
3. Use simple rather than complex language.
4. Use questions at beginning and end of lesson.
5. Provide for active involvement of the viewer.
6. Use simple rather than "fancy" filming techniques. Studies indicate that simple techniques are just as effective. One study found that animation actually distracted the viewer and reduced learning.
7. Some redundance is needed if the viewer is to remember main points.

APPENDIX C

FAR WEST LABORATORY FOR
EDUCATIONAL RESEARCH AND DEVELOPMENT

MINICOURSE - EFFECTIVE QUESTIONING
IN A DISCUSSION (SECONDARY)

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